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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,147	06/20/2001	Takeshi Aikiyo	FP 672- US(CIP)/PCT	5121

26381 7590 03/17/2004

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EXAMINER	
JACKSON, CORNELIUS H	
ART UNIT	**PAPER NUMBER**
2828	

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/884,147	Applicant(s) AIKIYO ET AL.	
	Examiner Cornelius H. Jackson	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Paul Ip

PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 18 November 2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 6,385,222 B1 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Information Disclosure Statement

2. The information disclosure statement filed 12 December 2001 and 26 December 2001 fails to comply with 37 CFR 1.97(c) because it lacks the fee set forth in 37 CFR 1.17(p). It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

3. Figures 6a and 6b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to

avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the reverse current flow prevention circuit and the surge suppression circuit must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-3 and 5-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claims 1-3 and 5-36 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a package, lead pins, lens, a substrate, photo diode, thermistor, peltier elements, etc.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

Claims 1-3, 5-11, 16-27, 29-32, 35 and 36 are rejected under 35 U.S.C. 102(d) as being barred by applicant's patent JP 11-310992 (application number). Applicant's patent JP 11-310992 (application number) was filed 01 November 1999 and published 04 August 2000. Regarding claim 1, Applicant's patent JP 11-310992 (application number) discloses a semiconductor laser module comprising, a semiconductor laser element **2**; and a thermo-module **5** for adjusting the temperature of the semiconductor laser element **2** in dependence upon an amount of current flowing into said thermo-module **5** and at least one of an overcurrent limiting circuit **20** to suppress an overcurrent flowing into the thermo-module and an overvoltage limiting circuit to suppress application of an overvoltage across said thermo-module, **see [0019]-[0063]**.

Regarding claim 2, Applicant's patent JP 11-310992 (application number) discloses an optical fiber **3** optically coupled for receiving laser light emitted from the semiconductor laser element **2.**

Regarding claim 3, Applicant's patent JP 11-310992 (application number) discloses a reverse current flow prevention circuit for preventing current from flowing

into said thermo-module in a direction opposite to that of a drive current of said thermo-module **5, see [0029] and [0035]-[0039]**.

Regarding claims 5 and 36, Applicant's patent JP 11-310992 (application number) discloses the surge suppression circuit comprises a diode disposed in series with said thermo-module and a surge suppression circuit for preventing surge current from flowing into said thermo-module and all the other limitations, **see [0035]-[0039]**.

Regarding claim 6, Applicant's patent JP 11-310992 (application number) discloses the thermo-module **5** comprises at least an element for alternatively heating and cooling in dependence upon a direction of current flowing therein, and wherein the overcurrent limiting circuit is electrically coupled with the at least an element to divert current flowing thereto and oriented for causing heating, **see [0029]-[0039]**.

Regarding claim 7, Applicant's patent JP 11-310992 (application number) discloses the overcurrent limiting circuit includes a diode **23** disposed serially to the thermo-module **5** and oriented for allowing current to flow therethrough when the flowing current is oriented in a direction for causing cooling of thermo-module **5**; and a current limiting circuit element **20** coupled in parallel to the thermo-module **5, see Drawings 1-3**.

Regarding claim 8, Applicant's patent JP 11-310992 (application number) discloses the overcurrent limiting circuit includes a capacitor **25** disposed in a bypass circuit parallel to the thermo-module, **see Drawing 2**.

Regarding claims 9 and 10, Applicant's patent JP 11-310992 (application number) discloses the overcurrent limiting circuit includes: a bypass channel between

an upstream side and a downstream side of the thermo-module for bypassing the thermo-module; and a diode disposed within the bypass channel and oriented for allowing current to flow therethrough when the flowing current is oriented in a direction for causing heating of the thermo-module; wherein in use circuit elements within the bypass channel and the diode provide an overcurrent limiting circuit to relieve the flow of an overcurrent in the direction for causing heating in the module-module, wherein the overcurrent limiting circuit includes a resistor disposed within the bypass channel serially to the diode, **see [0029]-[0039]**.

Regarding claim 11, Applicant's patent JP 11-310992 (application number) discloses a surge suppression circuit in parallel to the bypass path for preventing surge current from flowing into said thermo-module, **see rejection to claim 8 above**.

Regarding claim 16, Applicant's patent JP 11-310992 (application number) discloses a package **4** for storing therein the semiconductor laser element **2**, the thermo-module **5**, and at least part of the optical fiber **3**, the thermo-module **5** being mounted on a first plate **4a** of the package **4**, wherein the thermo-module **5** comprises a first substrate **5b** adjacent the first plate **4a**, a second substrate **5c** and a Peltier element **5a** disposed therebetween; wherein the semiconductor laser element **2** is disposed on the second substrate **5c** and thermally connected to said thermo-module **5** and wherein the overcurrent limiting circuit **20** is disposed on at least one of the first substrate **5b** and the first plate **4a**.

Regarding claim 17, Applicant's patent JP 11-310992 (application number) discloses the thermo-module is arranged in such a manner that the first substrate is

extended relative to the second substrate, and comprising a first conductor pattern and a second conductor pattern of said thermo-module disposed on an extended portion of the first substrate and wherein one end side of said overcurrent limiting circuit is coupled to said first conductor pattern and the other end side of said overcurrent limiting circuit is coupled to said second conductor pattern, **see Drawings 1-4**.

Regarding claim 18, Applicant's patent JP 11-310992 (application number) discloses at least another Peltier element between the first substrate and second substrate; an optical fiber; and a lens for focusing laser light emitted from the semiconductor laser and for directing said laser light into the optical fiber, wherein said lens is thermally connected by a thermally melting connection material to the second substrate of said thermo-module, **see [0038]-[0044]**.

Regarding claim 19, Applicant's patent JP 11-310992 (application number) discloses a package having a through hole communicating from the inside of the package to the outside thereof, an optical fiber supporting member disposed within the through hole; wherein an end portion side of the optical fiber is for being introduced from the outside of said package into the inside thereof via a through hole provided in said optical fiber supporting member, and wherein the first substrate is thermally isolated from said optical fiber supporting member, **see [0038]-[0044]**.

Regarding claim 20, Applicant's patent JP 11-310992 (application number) discloses a lensed optical fiber in which a lens is formed at the tip end portion onto which laser light is incident, **see claim 7**.

Regarding claim 21, Applicant's patent JP 11-310992 (application number) discloses a package **4** having a through hole **4c** communicating from the inside of the package **4** to the outside thereof for accommodating the semiconductor laser element **2** and the thermo-module **5**; an optical fiber supporting member **29** disposed within the through hole **4c**; wherein an end portion side of an optical fiber **3** is for being introduced from the outside of said package **4** into the inside thereof via a through hole **4c** provided in said optical fiber supporting member **29**, and wherein the first substrate is thermally isolated from said optical fiber supporting member **29**.

Regarding claim 22, Applicant's patent JP 11-310992 (application number) discloses a lensed optical fiber in which a lens is formed at the tip end portion onto which laser light is incident, **see rejection to claim 20 above**.

Regarding claim 23, Applicant's patent JP 11-310992 (application number) discloses a package for storing therein the semiconductor laser element, the thermo-module, and at least part of the optical fiber, the thermo-module being mounted on a first plate of the package, wherein the thermo-module comprises a first substrate adjacent the first plate, a second substrate and a Peltier element disposed therebetween; wherein the semiconductor laser element is disposed on the second substrate and thermally connected to said thermo-module and wherein the overcurrent limiting circuit is disposed on at least one of the first substrate and the first plate, **see corresponding claim rejections above**.

Regarding claim 24, Applicant's patent JP 11-310992 (application number) discloses the thermo-module is arranged in such a manner that the first substrate is

extended relative to the second substrate, and comprising a first conductor pattern and a second conductor pattern of said thermo-module disposed on an extended portion of the first substrate and wherein one end side of said overcurrent limiting circuit is coupled to said first conductor pattern and the other end side of said overcurrent limiting circuit is coupled to said second conductor pattern, **see corresponding claim rejections above**.

Regarding claims 25-27, 29 and 30, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, the rejection used against the device, stands for the method as well.

Regarding claims 31, 32 and 35, the recitation that a transmission device or a thermo-module has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951), **see corresponding claim rejections above**.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art **Figs. 6a-b** in view of Curl (4999728). Applicant's Admitted Prior Art teaches a semiconductor laser module comprising, a semiconductor laser element **2**; and a thermo-module **5** for adjusting the temperature of the semiconductor laser element **2** in dependence upon an amount of current flowing into said thermo-module **5**. Applicant's Admitted Prior Art fails to teach at least one of an overcurrent limiting circuit to suppress an overcurrent flowing into the thermo-module and an overvoltage limiting circuit to suppress application of an overvoltage across said thermo-module. Curl teaches at least one of an overcurrent limiting circuit to suppress an overcurrent flowing into the thermo-module and an overvoltage limiting circuit **Figs. 1 and 2** to suppress application of an overvoltage across said thermo-module (*electronic equipment*). It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the power surge protection circuit of Curl to the semiconductor laser module in Applicant's Admitted Prior Art to prevent damage to electronic equipment from line voltage transients associated with a temporary power line interruption.

11. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Applicant's Admitted Prior Art **Figs. 6a-b** in view of Nagakubo et al. (5515682). Applicant's Admitted Prior Art teaches a semiconductor laser module comprising, a semiconductor laser element **2**; and a thermo-module **5** for adjusting the temperature of the semiconductor laser element **2** in dependence upon an amount of current flowing into said thermo-module **5**. Applicant's Admitted Prior Art fails to teach at least one of an

overcurrent limiting circuit to suppress an overcurrent flowing into the thermo-module and an overvoltage limiting circuit to suppress application of an overvoltage across said thermo-module. Nagakubo et al. teach at least one of an overcurrent limiting circuit and an overvoltage limiting circuit. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a limiting circuit of Nagakubo et al. to the laser module for the express purpose of why they were designed, e.g. to suppress an overcurrent flow or application of an overvoltage to protect the semiconductor laser module in Applicant's Admitted Prior Art from damage due to overcurrent and overvoltage.

12. Claims 12-15, 28, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's patent JP 11-310992 (application number). Applicant's patent JP 11-310992 (application number), as applied to claims 1-11, 16-27, 29-32, 35 and 36 above, teach all the stated limitations even wherein in use the bypass channel, resistor and diode provide an overcurrent limiting circuit to relieve the flow of an overcurrent in the heating direction into said thermo-module, **see col. 7, lines 48-50**. Aikiyo fails to teach that the diode is a zener diode. It would have been obvious to one of ordinary skill in the art at the time the invention was made to any type of semiconductor laser device depending on the desired output, size, cost and reliability, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416.

Regarding claims 13-15, 28, 33 and 34, Aikiyo teach all the stated limitation, **see corresponding claim rejections above**.

Double Patenting

13. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

14. Claims 1-3, 5-7, 9-11, 16-27, 29-32, 35 and 36 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-16 of prior U.S. Patent No. 6,385,222 B1. This is a double patenting rejection.

Response to Arguments

15. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (571)272-1942. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (571)272-1941. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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